

## CLAIMS:

1. A method of testing analogue or radio frequency circuitry for the presence of faults, the method comprising the steps of:
  - a) applying a plurality (100) of different DC power supply voltages to a circuit component under test, at least one of said power supply voltages being arranged to cause at least some of the elements of the circuit or component under test to operate in a predetermined region of operation; and
  - b) measuring (102) the quiescent current of said circuit or component as a result of application of said power supply voltages to generate (104) a current signature representative of the operation of said circuit or component;
- 10 the method being characterized in that said power supply voltages at which said quiescent current measurements are taken comprise selected distinct voltages; and by the step of:
  - c) comparing (106) said generated current signature with a predetermined current signature representative of operation of a fault-free component or circuit so as to determine (108) whether or not any faults are present in the component or circuit under test.
- 15 2. A method according to claim 1, including the further step of measuring one or more selected nodal voltages, in addition to said quiescent current, as a result of application of said selected power supply voltages.
- 20 3. A method according to claim 2, wherein said one or more nodal voltages are measured at one or more respective output nodes of said circuitry.
4. A method according to any one of claims 1 to 3, including the step of providing a single supply voltage means and ramping said supply voltage up to attain each of said selected power supply voltages, prior to measurement of the quiescent current.
- 25 5. A method according to any one of claims 1 to 4, wherein the selected power supply voltages are selected so as to cause at least some of the elements of the circuitry under test to pass through several regions of operation.

6. A method according to any one of claims 1 to 5, wherein a fault dictionary database is provided, and the method includes the further step of comparing a generated current signature with contents of such a database to diagnose one or more faults present in 5 the circuitry under test.

7. A method according to any one of claims 1 to 6, wherein a tolerance window is defined for the resultant quiescent current measurements for at least one of the selected power supply voltages.

10 8. A method according to claim 7, wherein a tolerance window is defined for the resultant quiescent current measurements for all of the selected power supply voltages.

9. A record carrier on which is stored a computer program for enabling the 15 method of any one of claims 1 to 8 to be performed.

10. A method of testing analogue or radio frequency circuitry, including the step of making available for downloading a computer program for enabling the method of any one of claims 1 to 8 to be performed.

20 11. Apparatus for testing analogue or radio frequency circuitry for the presence of faults, the apparatus comprising  
a) means for applying a plurality of different DC power supply voltages to a circuit or component under test, at least one of said power supply voltages being arranged to cause at least some of the elements of the circuit or component under test to operate in a 25 predetermined region of operation; and  
b) means for measuring the quiescent current of said circuit or component as a result of application of said power supply voltages to generate a current signature representative of the operation of said circuit or component;  
30 the apparatus being characterized in that said power supply voltages comprise selected distinct voltages; and by:  
c) means for comparing said generated current signature with a predetermined current signature representative of operation of a fault-free component or circuit so as to determine whether or not any faults are present in the component or circuit under test.